Amendments to the Claims

1-41. (Cancelled).

42. (New) A system for heating a substance, the system comprising:

A. a vessel having enclosed sides, a thermally conductive bottom end and a top end forming an opening for the introduction and extraction of the substance, the bottom end having an external bottom side having a central area for receiving heat;

B. a series of thermally conductive protrusions coupled to the vessel peripherally about the central area, the protrusions extending from the vessel and defining with the central area a cavity; and

C. a heater comprising a heat source having a heat outlet configured to deliver heat to the cavity.

43. (New) The system of claim 42, further comprising a cover configured to close the opening.

44. (New) The system of claim 42, further comprising a thermal insulator configured to substantially encase the vessel.

45. (New) The system of claim 42, including a thermal insulator having a first portion configured to substantially encase the vessel a second portion configured to substantially encase the protrusions.

46. (New) The system of claim 42, wherein the heat outlet is a burner.

47. (New) The system of claim 46, wherein the burner is configured to burn a combustible fuel and the heat source is configured to couple to a fuel source, the combustible fuel including one or more of butane, propane, kerosene, gasoline, jet fuel, diesel, alcohol, or white gas.

48. (New) The system of claim 42, wherein the protrusions take the form of a series of fins formed from a single piece of thermally conductive material.

49. (New) The system of claim 42, wherein the protrusions take the form of a series of pins.

50. (New) The system of claim 42, wherein the vessel is a multi-walled vessel having an inner vessel and an outer shell, the inner vessel configured to hold the substance.

51. (New) The system of claim 42, wherein the protrusions are coupled to the vessel with a permanent couple.

52. (New) The system of claim 51, wherein the permanent couple is formed by brazing, soldering, welding, sonic welding, or gluing.

53. (New) The system of claim 42, further comprising:

D. a skirt configured to couple to the vessel, the skirt configured to substantially encase the protrusions and having a series of exhaust vents formed therein; and

E. a base configured to couple to the skirt, the base configured to substantially encase the heat source, the base having a set of air inlet vents formed therein,

wherein a gas flow path is formed from the air inlet vents to the exhaust vents via the heat outlet.

54. (New) The system of claim 53, wherein the base and heat source are configured to removably couple to the skirt.

55. (New) The system of claim 53, wherein the base is configured to be stored within the vessel.

56. (New) The system of claim 53, wherein the skirt is integral with the vessel to form a single unit.

57. (New) The system of claim 53, further comprising:

F. a baffle plate disposed below the heat outlet and forming part of said gas flow path, the baffle plate having one or more air vents formed therein configured to deliver a predetermined amount of air received from the air inlet vents to the heat outlet.

58. (New) The system of claim 53, wherein the skirt is integral with the base to form a single unit.

59. (New) The system of claim 42, wherein the protrusions comprise a series of undulations in at least one piece of thermally conductive material.

60. (New) The system of claim 59, wherein said undulations are comprised of a set of segments, with at least one segment thermally coupled to the vessel.

61. (New) The system of claim 42, wherein said protrusions have an aspect ratio of at least about 5.

62. (New) The system of claim 61, wherein said protrusions have an aspect ratio between about 10 and 20.

63. (New) The system of claim 42, wherein said protrusions are substantially oriented to minimize radial obstruction of the flow of combustion gasses from the heat outlet.

64. (New) system of claim 42, wherein said protrusions are arranged in at least one ring disposed about the heat outlet.

65.(New) A high efficiency heat exchanger configured for transferring heat to a vessel having a surface with a central area for receiving heat, the heat exchanger comprising:

A. a series of thermally conductive protrusions configured to thermally couple to, and extend from, the vessel peripherally about the central area, the protrusions configured to define with the central area a cavity; and

B. a heater comprising a heat source having a heat outlet configured to deliver heat to the cavity.

66. (New) The high efficiency heat exchanger of claim 65, wherein the protrusions are configured to permanently couple to the vessel.

67.(New) The high efficiency heat exchanger of claim 66, wherein the permanent couple is formed by brazing, soldering, welding, sonic welding, or gluing.

68. (New) The high efficiency heat exchanger of claim 65, wherein said protrusions have an aspect ratio of at least about 5.

69. (New) The high efficiency heat exchanger of claim 68, wherein said protrusions have an aspect ratio between about 10 and 20.

70. (New) The high efficiency heat exchanger of claim 65, wherein said protrusions are substantially oriented to minimize radial obstruction of the flow of combustion gasses from the heat outlet.

71. (New) The high efficiency heat exchanger of claim 65, wherein said protrusions are arranged in at least one ring disposed about the heat outlet.

72. (New) The high efficiency heat exchanger of claim 65, further comprising:

C. a skirt configured to peripherally encase the protrusions, the skirt having a series of exhaust vents formed therein; and

D. a base configured to substantially encase the heat source, the base having a set of air inlet vents formed therein, wherein a gas flow path is formed from the air inlet vents to the exhaust vents via the heat outlet.

73. (New) The high efficiency heat exchanger of claim 72, further comprising:

E. a baffle plate disposed below the heat outlet and forming part of said gas flow path, the baffle plate having one or more air vents formed therein configured to deliver a predetermined amount of air received from the air inlet vents to the heat outlet.

74. (New) A heating vessel for use with a heater for heating a substance, the heater having a heat source including a burner head and a port for coupling to a fuel supply system, the heating vessel comprising:

A. a vessel having enclosed sides, a thermally conductive bottom end and a top end forming an opening for the introduction and extraction of the substance, the bottom end having an external bottom surface having a central area; and

B. a series of thermally conductive protrusions coupled to the vessel peripherally about the central area, the protrusions extending from the vessel and defining with the central area a cavity configured for receiving heat output from the burner head.

75. (New) The heating vessel of claim 74, wherein said protrusions have an aspect ratio of at least about 5.

76. (New) The heating vessel of claim 75, wherein said protrusions have an aspect ratio between about 10 and 20.

77. (New) The heating vessel of claim 74, wherein said protrusions are substantially oriented to minimize radial obstruction of the flow of combustion gasses from the burner head.

78. (New) The heating vessel of claim 74, wherein said protrusions are arranged in at least one ring disposed about the burner head.

79. (New) The heating vessel of claim 74, wherein said protrusions comprise a series of undulations in at least one piece of thermally conductive material.

80. (New) The heating vessel of claim 79, wherein said undulations are comprised of a set of segments, with at least one segment thermally coupled to the vessel.

81. (New) The heating vessel of claim 74, wherein some of said protrusions radially extend beyond said external bottom surface and transverse portions of the sides of the vessel.

82. (New) The heating vessel of claim 81, wherein the vessel has a height of *H* and said portion of the vessel sides traversed by said protrusions is less than about 1/4 of said vessel height *H*.

83. (New) The heating vessel of claim 74, further comprising:

C. a skirt configured to peripherally encase the protrusions, the skirt having a series of exhaust vents formed therein; and

D. a base configured to substantially encase the heat source, the base having a set of air inlet vents formed therein, wherein a gas flow path is formed from the air inlet vents to the exhaust vents via the burner head.

84. (New) The heating vessel of claim 83, further comprising:

E. a baffle plate disposed below the heat outlet and forming part of said gas flow path, the baffle plate having one or more air vents formed therein configured to deliver a predetermined amount of air received from the air inlet vents to the heat outlet.

85. (New) The heating vessel of claim 74 further comprising a removable handle assembly.

86. (New) A system for heating a substance, comprising:

A. an inner vessel designed to hold the substance, said inner vessel having an inner vessel interior surface and an inner vessel exterior surface, said inner vessel having an open top and extending downward from said open top to terminate in an inner vessel bottom;

B. a housing having a housing sidewall with a housing sidewall exterior surface and a housing sidewall interior surface, said housing sidewall terminating in a housing sidewall base region and a housing sidewall top region, said housing sidewall being configured such that said inner vessel, when positioned and affixed in said housing, provides an annular gap between said inner vessel exterior surface and said housing sidewall interior surface, said housing sidewall top region having exhaust vents therethrough communicating with said annular gap;

C. a heater having a fuel supply system and burner head bounded by a peripheral border, said heater being mounted to said housing sidewall base region of said housing so as to position said burner head under said inner vessel bottom; and

D. downwardly-directed protrusions coupled to said inner vessel exterior surface, said protrusions extending beyond said inner vessel bottom and positioned such that said protrusions are arranged around said peripheral border of said burner head so as to provide a cavity which encompass said burner head so as to collect a substantial portion of the heat from the combustion by said burner head, as the heat passes through said protrusions into said annular gap.

87. (New) The system of claim 86, wherein said fuel supply system further comprises:

1. a fuel inlet configured to receive fuel from a fuel tank; and
2. a fuel and air mixing tube which is positioned between said burner head and said fuel inlet.

88. (New) The system of claim 86, wherein said heater is made integral with said housing sidewall base region.

89. (New) The system of claim 86, further comprising:

E. a burner mounting coupling formed on said heater; and,

F. a housing mounting coupling on said sidewall base region, said housing mounting coupling being configured to attachably mate with said burner mounting coupling of said heater.

90. (New) The system of claim 86, further comprising:

E. a base configured to substantially encase the burner head, the base having a set of air inlet vents formed therein, wherein a gas flow path is formed from the air inlet vents to the exhaust vents via the burner head; and

F. a baffle plate disposed below the burner head and forming part of said gas flow path, the baffle plate having one or more air vents formed therein configured to deliver a predetermined amount of air received from the air inlet vents to the burner head.

91. (New) The system of claim 86, wherein the protrusions are permanently coupled to the inner vessel exterior surface.

92. (New) The system of claim 91, wherein the permanent couple is formed by brazing, soldering, welding, sonic welding, or gluing.

93. (New) The system of claim 86, wherein said protrusions have an aspect ratio of at least about 5.

94. (New) The system of claim 93, wherein said protrusions have an aspect ratio between about 10 and 20.

95. (New) The system of claim 86, wherein said protrusions are substantially oriented to minimize radial obstruction of the flow of combustion gasses from the burner head.

96. (New) The system of claim 86, wherein said protrusions are arranged in at least one ring disposed about the burner head.